

Horrox's letters to Crabtree, to which we are indebted for most of our scanty biographical information. An inspection of the originals, should these have been preserved would probably contribute much to clear up doubtful points, and to complete our conception of Horrox's intellectual character. The main outlines of the latter, however, are sufficiently apparent. They comprise a marvellous patience and persistency, combined with wide-reaching activity, a philosophical faculty for generalisation, ambition, enthusiasm, and self-confidence. The versatility of his attainments is attested by the composition of his "Venus" in Latin, by the quotations in his letters from Horace and Juvenal, and by his reference to Raleigh's "History of the World." Of his restless energy and fertility of resource we have proof in the promptitude with which, when debarred from his favourite pursuit, he turns to the investigation of the tides. His grasp of general principles is displayed, among other passages, by a remarkable one in which he speaks of the possibility of illustrating the elliptic orbits of the planets by terrestrial analogies. "To which method of confirmation Kepler is always partial, and most justly, inasmuch as Nature throughout the universe is One, and the general harmony of creation causes the lesser things to be examples of the greater, as the revolution of the moon around the earth is an emblem or imitation of that of the stars around the sun." We have already had occasion to appreciate his enthusiasm; and the self-reliance usually associated with enthusiasm is powerfully evinced in another letter exhorting Crabtree to undertake, in conjunction with him, the preparation of a new set of astronomical tables. From some expressions in this it may be conjectured that he felt hurt at the ignorant comments of his neighbours, and his resentment against his false guide Lansberg, which occasionally transgresses the limits of what would be considered courtesy at the present day, is another indication of a sensitive spirit. When we add to these traits the self-denial manifested on occasion of the transit, and in the temporary renunciation of his astronomical researches in deference to the claims, as seems probable, of his family, we must recognise in Horrox no mere man of science, but a distinct individuality of singular force and attractiveness. His precise place in the scientific world must be left to astronomers to determine; it requires, however, no special knowledge of the science to apprehend that the obscure youth who, under every disadvantage, was able to correct Kepler, might, if only he could have continued at Cambridge, very probably have rivalled him. In him England lost the promise of an astronomer of the first class, which loss, like many a similar one, would have remained absolutely unknown, but for the fortunate conjunction of his name with a phenomenon of regular recurrence and universal interest. If the commemoration of his great achievement cannot be equally universal, it should at least transcend merely local limits. Local patriotism has done its part well; an appropriate memorial has been erected in the church at Hoole, and we are exceedingly indebted to Mr. Whatton for his intelligent memoir and valuable translation of the "Venus in Solē visa." More, however, is demanded, and it would redound to the credit of Horrox's countrymen if, on the December day of 1874, when English watchers scan the

skies of another hemisphere for the transit of Venus, Englishmen at home were found dedicating a national monument to the first observer of the phenomenon in this.

JAGOR'S "PHILIPPINE ISLANDS"

Reisen in den Philippinen, von F. Jagor. Mit zahlreichen Abbildungen und einer Karte. (Berlin: Weidmannsche Buchhandlung. 1873.)

THE increasing importance which the Philippines are assuming in both English and American commerce, the comparative insufficiency of the information we possess concerning them, and the beauty and productiveness of nearly the whole region, amply justify the ardour with which the author of this volume has devoted himself to a thorough exploration of the group, and an exhaustive study of every feature of interest appertaining to its component islands and their population. In this very interesting and acceptable work he has given to the world the results of his observation and inquiries, and of these it may be said that, while in point of extent and variety they are sufficiently comprehensive to embrace within their limits every subject of interest or of practical importance to which we should expect to find a place assigned in a book of travels having any pretensions to completeness, they bear the evident impress of the patient, laborious research, and the careful examination and weighing of facts, for which his countrymen are famous.

M. Jagor can hardly be said to be a recent traveller in these islands. His journey through them was made in the years 1859 and 1860, but unforeseen circumstances put a sudden stop to it; and though fully intending to resume it at a later day, that purpose has not yet been accomplished. Although it must be admitted, therefore, that his work does not make its appearance with all that absolute freshness about it to which we are accustomed in these days of ocean steam-navigation, the apparently long interval which has elapsed since his visit has been profitably turned to account by him in the careful study of an immense mass of materials accumulated by himself during his stay, or which he obtained through the Spanish Colonial Minister, or found in the great national libraries of London and Berlin, including a few bulky monkish chronicles, the perusal of which last was a work both long and tedious. In the vast labour incident to the extraction from these various sources of their most important and most interesting details, he has been sustained by a conviction that his subject was worthy of it. He has felt, as he tells us, that few countries in the whole world are so little known or so seldom visited as the Philippines, while none present more agreeable attractions for the traveller, or have been more profusely endowed by the hand of Nature, or contain a larger store of neglected treasure for the natural historian. So strong and so abiding is his faith on this last point, he gravely assures his readers, that even poor travellers would amply cover the cost of their journey by the sale of their collections. Without going so far as to endorse this suggestion in its full and entire significance, it is nevertheless true that the descriptions here given constitute, in the aggregate, a picture of marvellous natural

wealth, of which it is on many accounts desirable that modern enterprise should have full and trustworthy information.

The travels recorded in this volume extended through the greater portion, certainly the most important and interesting, of the Spanish Philippines. Manila was the starting point. The author first made a short excursion northwards, thence into the province of Bulacan, and returning to Manila ascended the river Pasig, at the mouth of which it stands, to the great lake of Bay, crossing which he made several journeys into the province of Laguna. Returning thence to Manila, he crossed its magnificent bay, spacious enough to hold all the navies of the world, and proceeding by sea along the deeply indented southern coast of the great island of Luzon, and traversing the Straits of San Bernardino, landed at Albay, the chief town of the large insular province of the same name. From this point he made an excursion into the extreme southern districts of the island, visiting the great volcano of Balusan on his way, and returning to Albay, started thence in a north-westerly direction on a journey through southern Camarines. On this journey many natural features of the highest interest engaged his attention, and notably the great volcanoes of Mayon and Yriga, the Bateo Lake, and the remarkable siliceous wells near Tibi, with the great flat cones called the "white" and the "red," between which they lie—the whole of this district presenting one of the finest examples of calcareous depositions, in various states of advancement, in the whole world. Returning westwards to his main route, he reached Meroce Caceres, near the confines of northern and southern Camarines, and from this point made a considerable digression eastwards, for the purpose of visiting the vast volcano Ysarog, of which, and of the inhabitants of the region, he has given a full and highly interesting description. Again returning to his main route, he arrived at Cabusao on the Bay of San Miguel, and from this point, partly by land and partly by coasting, he explored about forty miles of the eastern coast of this portion of North Camarines, making occasional journeys inland where the prospect of reward seemed to invite attention. Returning to Albay, he embarked at that place for the next important island in this remarkable archipelago, Samar. There he landed at the north-eastern point, and crossing in a south-westerly direction to its western coast, coasted some twenty or thirty miles southwards to Carthalogan. From this place he traversed the centre of the island, and descending the river Ulut, reached the eastern side. He next coasted to its south-eastern extremity, and thence returned westwards, landing at Tacloban, the chief town of the closely adjacent island of Leyte, on which he made a journey many miles to the south. He then traversed the narrow Straits of San Francisco, which separate Samar and Leyte, visiting the ancient rock sepulchres in which the inhabitants of Bisay and some other localities interred the remains of their heroes and their elders. Continuing his return journey by sea, he again reached Manila, after having visited some minor islands, and obtained interesting information relative to them.

It would be vain to attempt, within the narrow limits of space available for our present purpose, anything like a substantial account of the innumerable matters of interest,

with which M. Jagor's book deals. The mere enumeration of them would very considerably extend the proportions of an ordinary review, and there are many, very many, which present attractions of the highest order for the geographer, the geologist, the ethnologist, the naturalist, and others who interest themselves in certain special branches of modern science. All that can be done is to indicate a few of the more striking portions of the work, by which its character and completeness may be judged of, referring to the work itself—which we venture to think would well repay translation—those specially interested in its subject.

In his first chapter, the author makes some remarks on the situations of the group, and describes a few amusing circumstances which resulted from the ignorance of Magellan and his followers, of the difference of time depending upon difference of longitude. Such was the injudicious commercial policy of the Spaniards in those dependencies, that the intercourse between them and the Mother Country "was limited to the conveyance of officials and ecclesiastics, and their ordinary necessities—provisions, wine, and other beverages (Caldos), and, a few French romances excepted, some very dull books—histories of Saints and other similar matters." As regards the aspect of Manila, despite the glowing descriptions of it given by many travellers, the author experienced considerable disappointment; his first impressions being received at a most unfavourable moment, since he landed towards the close of the dry season. The account he gives of the state of society in Manila and its suburbs is anything but inviting. "Life in the city proper can scarcely be agreeable: pride, envy, place-hunting, caste-hatred, are the order of the day. The Spaniards deem themselves superior to their Creoles, who, in their turn, reproach them with coming to the colony only to eat their fill. The same hatred and the same grudge exist between the whites and the half-castes." It appears that cock-fighting is the great pastime of the population. The social, political, and commercial condition of the colony is fully developed in the first four chapters of the book, and in connection with this part of the subject the author ventures on a few reflections on the future of the Philippines. He says:—"Now that the Eastern shores of the Pacific are at length becoming populated, and with unparalleled rapidity are advancing towards their great future, the Philippines can no longer remain in the exclusion which has hitherto been their lot; because, for the western coast of America, there is certainly no tropical Asiatic country so favourably situated; while as regards Australia, it is only in certain relations that Dutch India can dispute precedence with them. Their trade with China, on the contrary, whose staple-market Manila originally was, as also that with the western countries of Asia lying nearer to the ports of the Atlantic, they must for ever renounce."

The fifth chapter is devoted to a very clear and comprehensive exposition of the geography and the meteorology of the Archipelago, the political divisions of the Islands, their various populations, and the languages spoken in them.

On his first journey into the province of Bulacan, the author was much struck with the fertility of the soil, a subject upon which he has a good deal to say, as also

upon the contrivances used for fishing. 'There, too, as in other portions of his route, he became familiar with the ways of Spanish priests, and formed his experiences of native hospitality, besides learning something of the system of wholesale plunder which is carried on almost with impunity, on sea and on land, in this—as in all other portions of the islands, where it is likely to pay. It appears, from the author's statements, that piracy is frequent on the coast, and that the country is likewise exposed to gangs of lawless marauders, against whom the Government is almost powerless, while the people are generally deprived of firearms, or, when provided with them, don't know how to use them. Occasionally they make descents upon the land, plundering wherever they go, often accompanying their rapacity with deeds of violence, even murder, and constantly carrying away their victims as prisoners.

Of the land and sea journeys of M. Jagor, generally, it may be said that they are full of incident, and that he never allows anything to escape his notice which may appear to him to be likely to have interest in the eyes of Europeans. From volcanic eruptions to the many odd incidents that presented themselves to him on his journey, nothing is unworthy of his attention, nor beyond his graphic power. His style is at once quiet, simple, and effective, and will delight every reader of German, by the ease with which it portrays the grandest or the most simple objects. He is always deeply impressed with the grandeur of the scenery through which his path lies, heightened as it often is by the beauty and luxuriance of tropical vegetation, and the majesty of primæval forests which extend their dense masses to the sea-margin. The natural productions of the country—animal, mineral, and vegetable—are the subject of copious mention; and in connection with this part of the subject he has been at great pains to examine for himself, and put on record, the industrial and Governmental conditions under which all this mineral and other wealth is, or rather is not, made available for commerce. This is remarkably seen in his chapters on Manila hemp, and on the Government tobacco monopoly.

One of the most curious and interesting portions of the whole book is the twentieth chapter, which describes some remarkable antiquities in the narrow San Francisco strait, a locality whose picturesqueness the author extols, questioning much "whether the ocean anywhere laves a spot of such rich and peculiar beauty." The substance of this chapter, together with a few other portions of the work, has already appeared in Bastian and Hartmann's "*Zeitschrift für Ethnologie*." The remains referred to are certain ancient sarcophagi found in cavities in a series of marble-like rocks situated near the eastern entrance to the straits, and in a few other remarkable localities. These rocks rise out at sea to a height of a hundred feet. Their summits are dome-shaped, and their bases are much worn by the action of the sea. In these cavities the ancient Pintados, a race of tattooed Indians, and some other natives of the Archipelago, deposited the remains of their wives and elders as before adverted to. They placed them in carefully closed coffins along with the objects which in life they deemed most precious. Slaves were sacrificed at their burial, in order that they might not be without attendants in the next world. These spots

were regarded with superstitious awe by the natives, who believed them to be haunted. A young Spanish clergyman led an expedition to some of the caves, and after some religious ceremonies, wrecked the coffins, and turned their contents into the sea. The superstition still lingers about the rocks, although much weakened. The author had some difficulty in finding men resolute enough to accompany him on an expedition having a somewhat different object in view, that of bringing away some of the relics. He succeeded, however, and the trophies were deposited by him in the Zoological Museum of Berlin University.

Profs. Roth and Virchow have contributed to the scientific portion of the book—the former dealing minutely with the geology of the group, the latter with its ancient and its more recent inhabitants. A copious appendix contains articles treating of the Islands under every possible aspect—historical, antiquarian, commercial, and governmental. The book is handsomely got up, and is printed in Roman characters, now getting more and more into use in Germany, and it is enriched with numerous admirably executed engravings, in various styles, from drawings made by the author on the spot, or obtained by him during his journey. A beautifully executed map is added, and the whole volume may be said to be an important and valuable contribution to the literature of its class.

MILLER'S ROMANCE OF ASTRONOMY

The Romance of Astronomy. By R. Kalley Miller, M.A. (Macmillan & Co., 1873.)

IT is in days of strongly marked utilitarianism, when so much is brought into the market that was never intended to go there, and so much of what is there is unfortunately rated at its marketable value only, that corresponding efforts should be made, by those who have the welfare of society at heart, to maintain the due balance of the human intellect by the cultivation of its imaginative faculty. It is here that poetry affords the noblest aid; and even the profusion of modern fiction may be looked upon by the philanthropist with less regret; if only moderately sensible and well-guided, it may lend important assistance in obviating that degeneration which would be the sure result of undue and excessive mental development in any one direction.

The work now before us, a curious little book with a curious title, may in this view of things not be without its value. It is a reprint and enlargement of some popular lectures which appeared in the *Light Blue*; and the author tells us that his object "has not been so much to instruct as to entertain, and possibly in some cases to inspire a taste which might lead to the further prosecution of a most fascinating study; and this will be his apology for passing over many important parts of the subject, and simply selecting a few points here and there which seem to afford scope for striking or amusing amplification." And in pursuance of this design, he brings before us a series of speculations as to the possible condition of other worlds, where fancy is allowed as full a range as the most romantic of readers can desire. As an amusing instance of his peculiar vein, the following passage may be cited: "The part of the moon which appears bright to us must